CALIFORNIA DIVISION OF MINES AND GEOLOGY

Supplement #1 to Fault Evaluation Report FER-40

April 24, 1978

1. Name of fault

Red Hill fault.

4. List of references

Photography

Designation: Fairchild C-829

Type: Vertical, stereo, black and white

Scale: 1:7,200

Date flown: 1930

Coverage: An east-west-trending rectangular area that extends from the lower San Gabriel Range front foothills on the north to the Santa Fe railroad tracks on the south, and from the eastern border of the Cucamonga Peak and Guasti quadrangles on the east to the middle of the Mt. Baldy and Ontario quadrangles on the west.

Availability: Fairchild aerial photo collection, Geology Department, Whittier College, Whittier, California.

6. Interpretation of aerial photography

This photo set covers all of the Red Hill fault zone, as shown on the maps of FER-40. Along the southern side of Red Hill (figures 5b and 5c) there is good geomorphic evidence for the existence of the fault. The southern side of the hill appears to be an eroded

fault-line scarp. There are, however, no fault scarps or other geomorhpic evidence to indicate the actual position of the fault. I observe no geomorphic evidence suggestive of Holocene faulting in this area.

To the north of Etiwanda, I observe the same south-facing, northeast-trending scarp as shown by Morton (1976). Elsewhere, along the presumed trend of the Red Hill fault, I see no other evidence of surface faulting.

7. Field observations

I observed essentially the same scarp on the ground as I can see in the aerial photographs (north of Etiwanda). At the northeastern end the scarp has been washed out by the side-cutting action of East Etiwanda Wash. To the southwest, the scarp fades out rapidly to the west of Etiwanda Avenue, and is no longer discernable more than 30 m west of the road. The scarp is 1 m to 2 m in height, northwestern side upthrown. The alluvial surface that has been cut by this fault is the same surface that is cut, about 2 km to the north, by the prominent scarps of the Cucamonga fault zone on the Day Canyon fan.

The Red Hill fault scarp is at a relatively advanced state of erosion; it appears to be older than most of the Cucamonga fault scarps that cut alluvium. Through-running drainage channels and local drainage channels, some shorter than 20 m in length, have downcut through the scarp at intervals ranging from 10 m to 20 m along the scarp. Also, the scarp has eroded back to a relatively low angle. Most of the scarp face reaches an angle no steeper than 10° to 15° , and only in a few places is it as steep as 15° to 20° . At one area, however, near the center of the scarp as shown on figure 5a, there is a low (about 1/2 m high)

younger-looking scarp that extends for about 100 m along the base of the main scarp. This scarp is not nearly as modified by erosion as the main scarp. It may represent a more recent reactivation of the fault.

8. Conclusions

The only well-defined surface evidence for the existence and position of a fault is the scarp north of Etiwanda. This scarp may have been generated, at least in part, by Holocene fault displacement. At this time, we have no means of determining its exact age.

Recommendation

I recommend that a narrow zone be established along that scarp (in the Cucamonga Peak quadrangle). Figure 6 shows my recommended zoning for the Red Hill fault zone.

Investigating geologist's name and date:

Drew P. Smith

DREW P. SMITH
Assistant Geologist
April 24, 1978

I agree with recommendation
5/9/78